

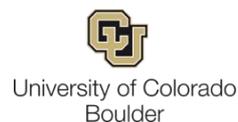
Oliktok Point Site Science: An overview of ongoing UAS-related research efforts



Gijs de Boer

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In collaboration with (alphabetical): Albert Bendure, Darielle Dexheimer, Ru-Shan Gao, Fred Helsel, Joe Hardesty, John Hubbe, Mark Ivey, Dale Lawrence, Chuck Long, Fan Mei, Beat Schmid, Carl Schmitt, Hagen Telg



Campaigns

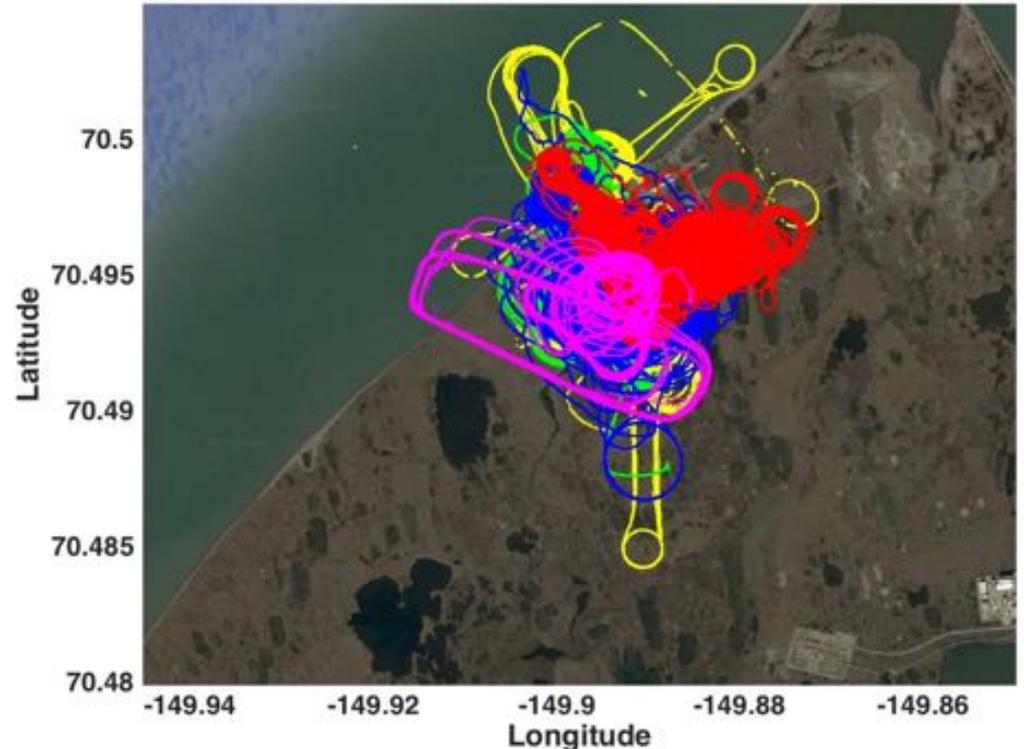


Campaign	Dates	Operator	Aircraft
COALA	7-19 October, 2014	University of Colorado	DataHawk
ERASMUS1	2-16 August, 2015	University of Colorado	DataHawk2
ERASMUS2	2-16 April, 2016	University of Colorado	Pilatus
ICARUS1	5-11 June, 2016	DOE ARM	DataHawk2
ICARUS2	26 June-23 July, 2016	DOE ARM	DataHawk2
ICARUS3	7-20 August, 2016	DOE ARM	DataHawk2
ERASMUS3	10-22 October, 2016	University of Colorado	DataHawk2

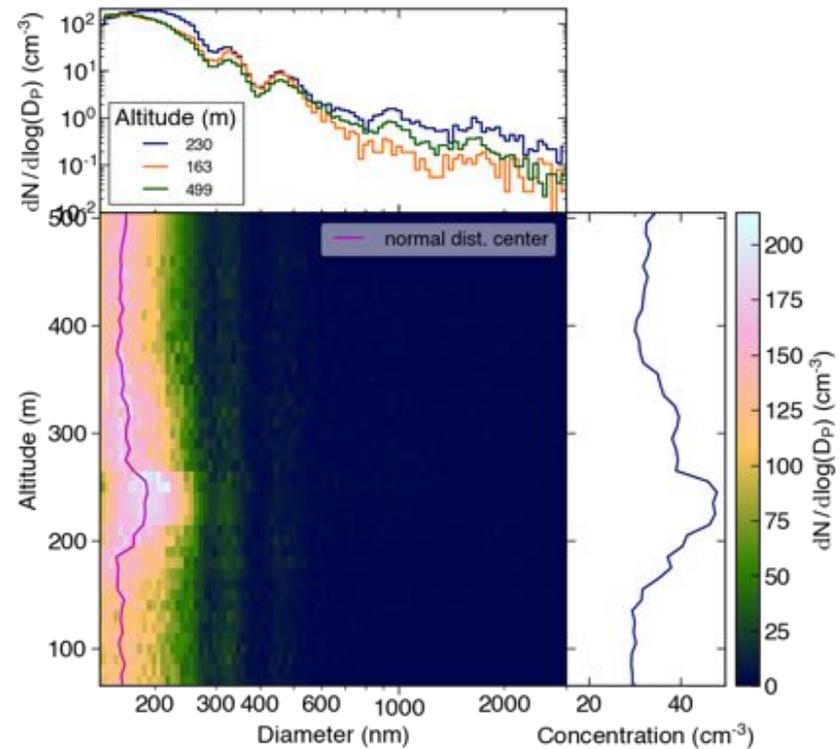
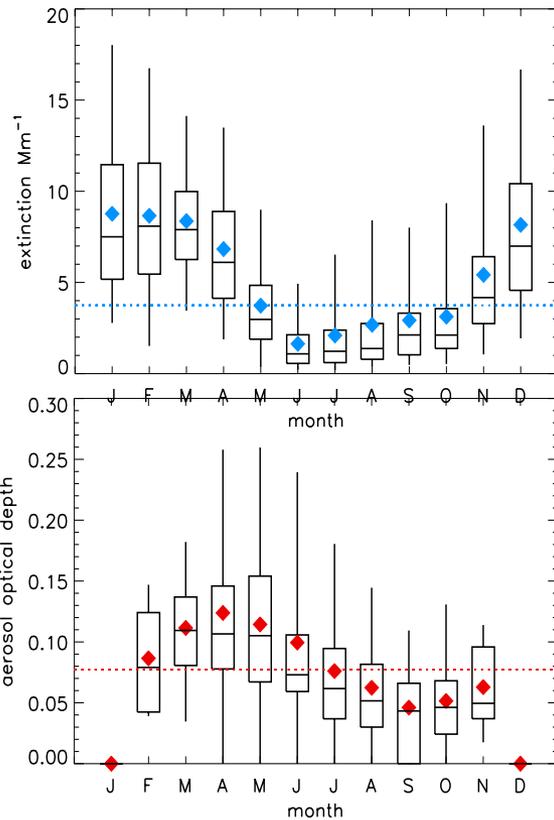
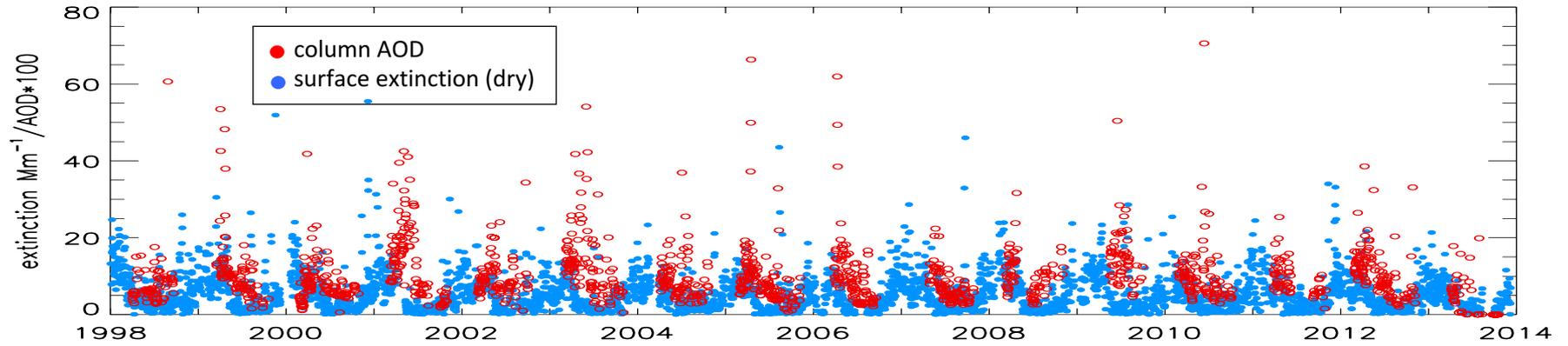
COALA: Coordinated Observations of the Lower Arctic Atmosphere

ERASMUS: Evaluation of Routine Atmospheric Sounding Measurements using Unmanned Systems

ICARUS: Inaugural Campaigns for ARM Research using Unmanned Systems



Scientific Areas of Interest: Aerosols



Scientific Areas of Interest: Sea Ice Freeze Up

17 Oct. 2016



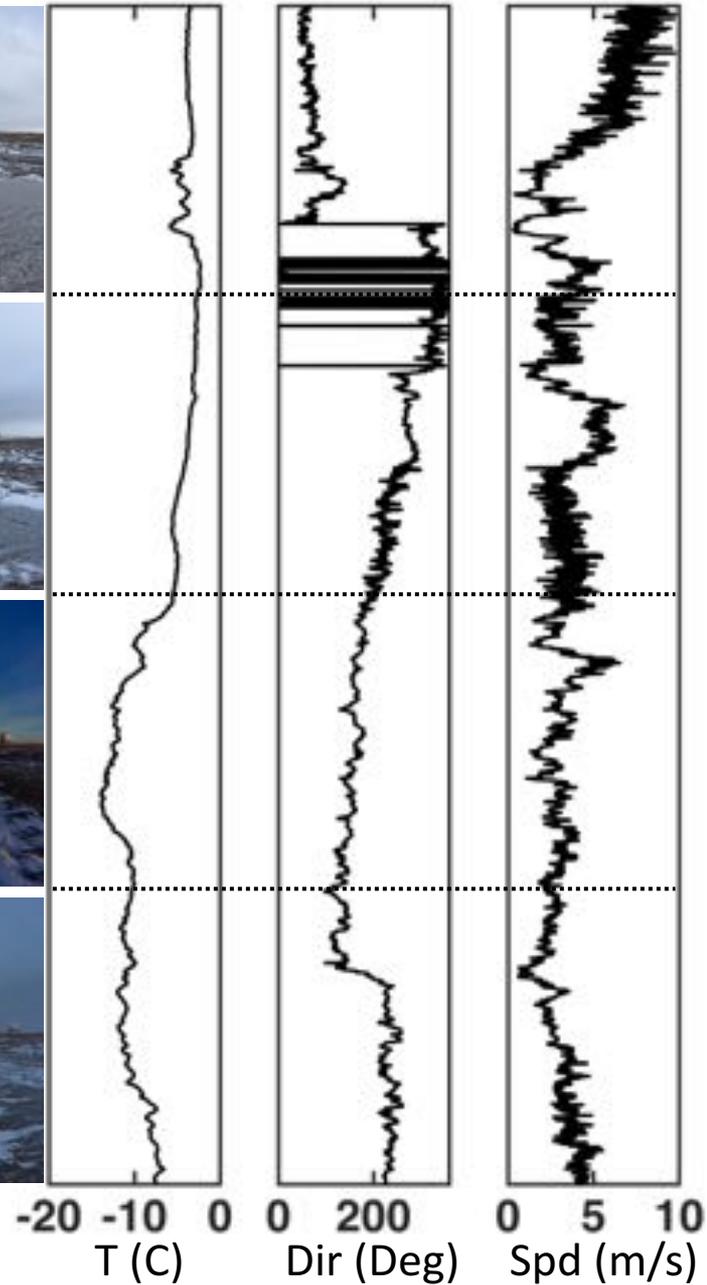
18 Oct. 2016



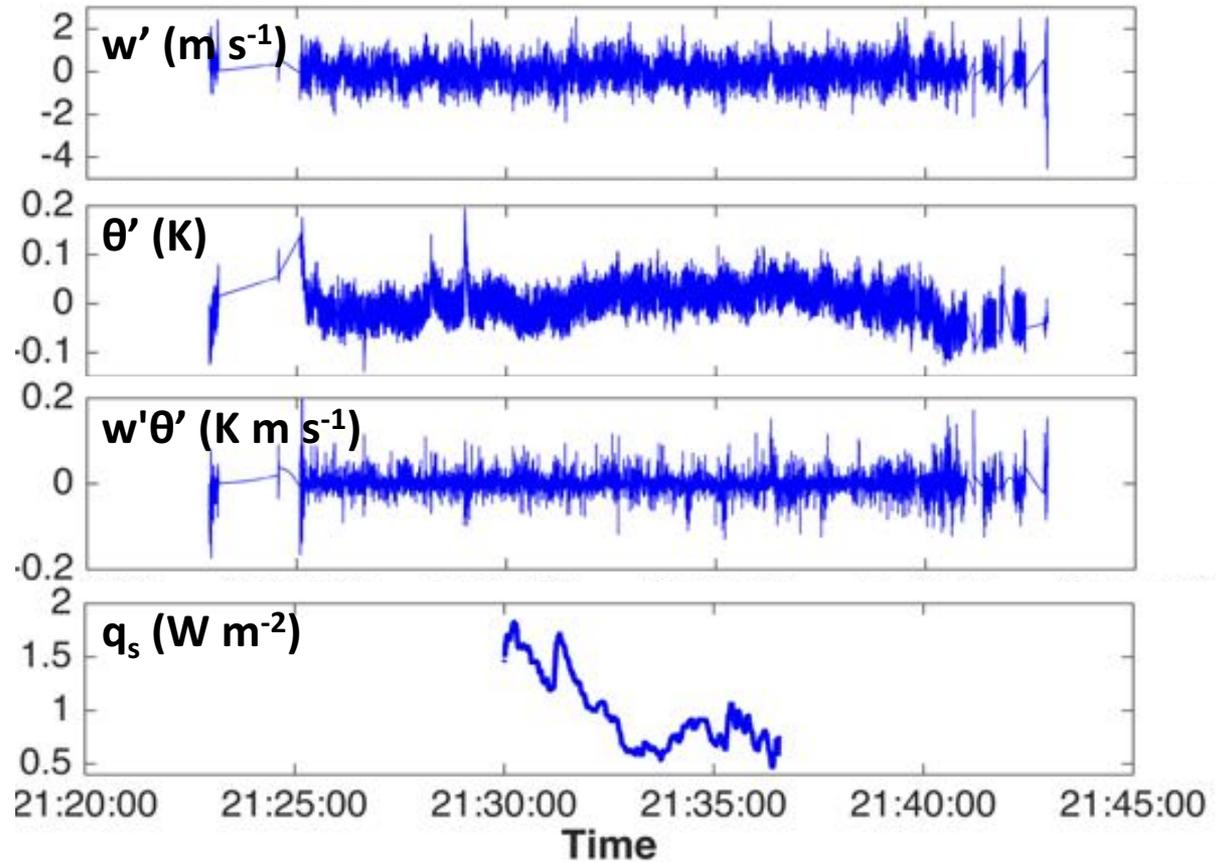
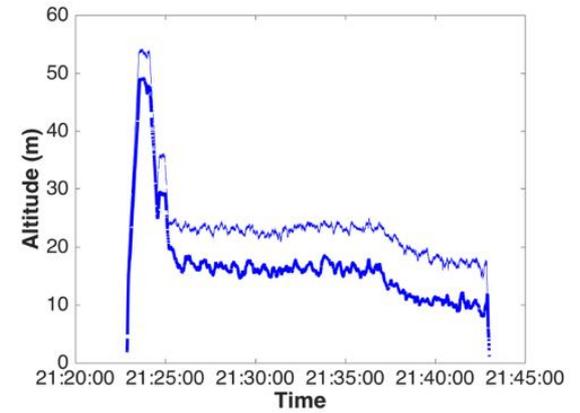
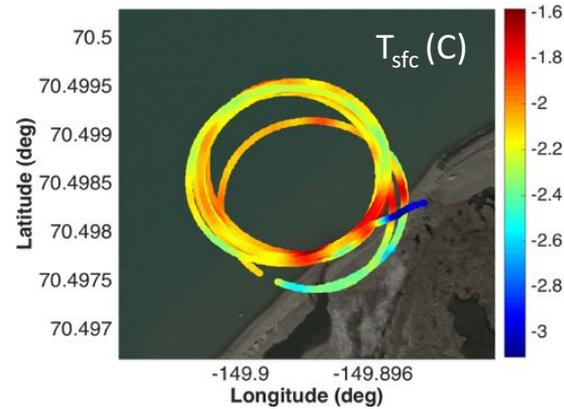
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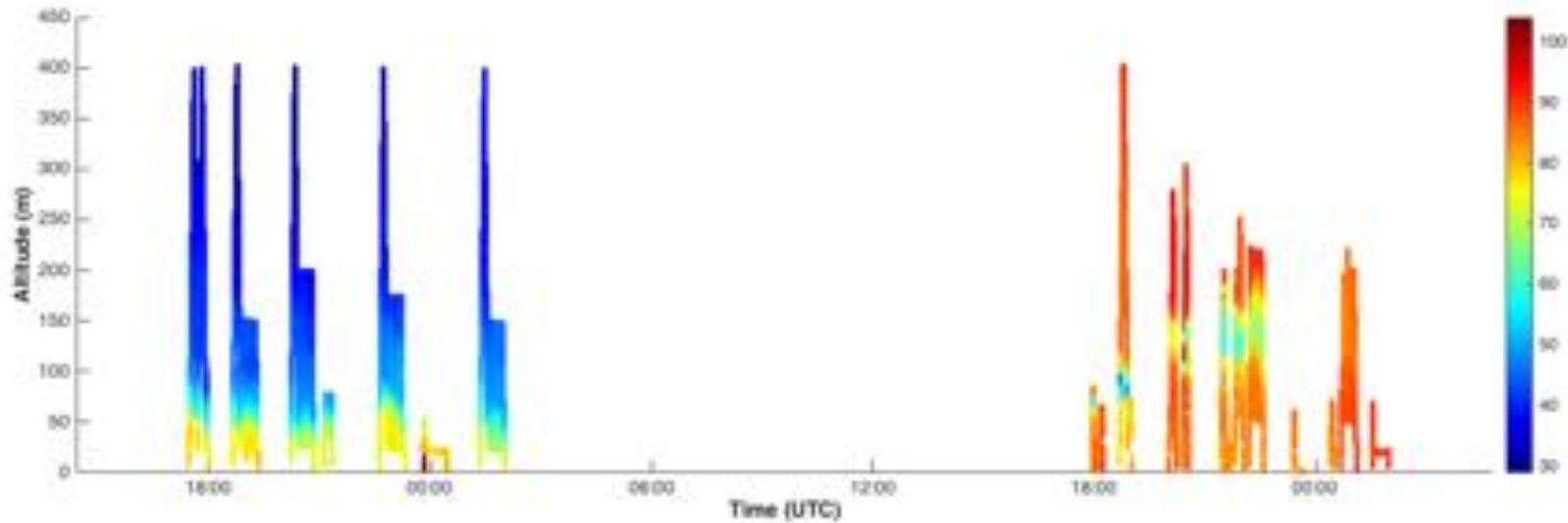
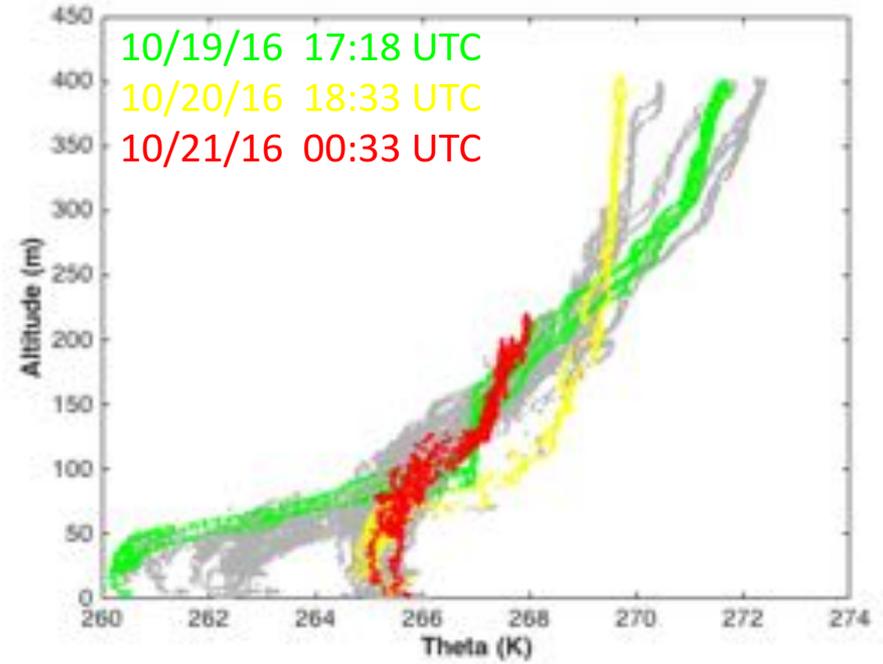
20 Oct. 2016



Scientific Areas of Interest: Turbulent Fluxes

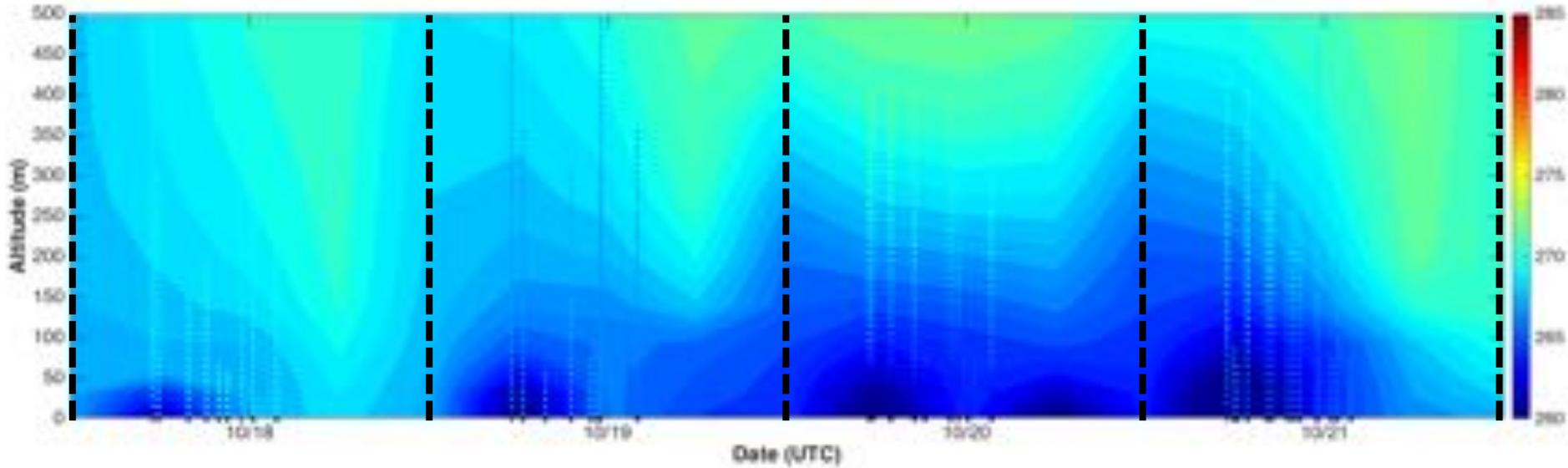


Scientific Areas of Interest: Thermodynamic Structure

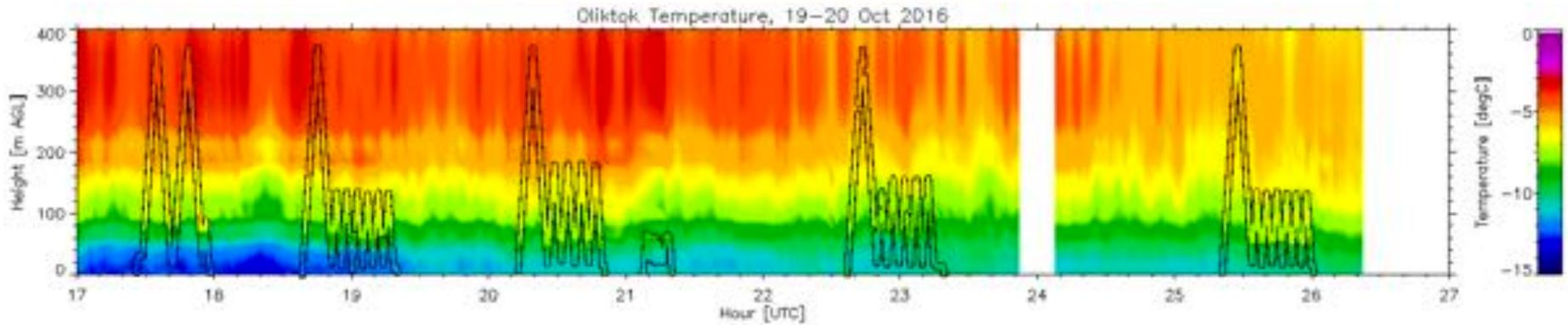


Scientific Areas of Interest: Retrieval/Model Eval.

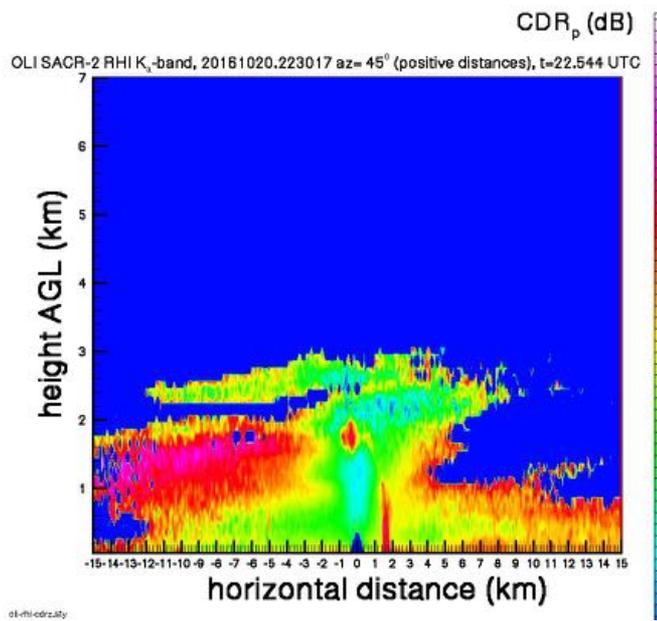
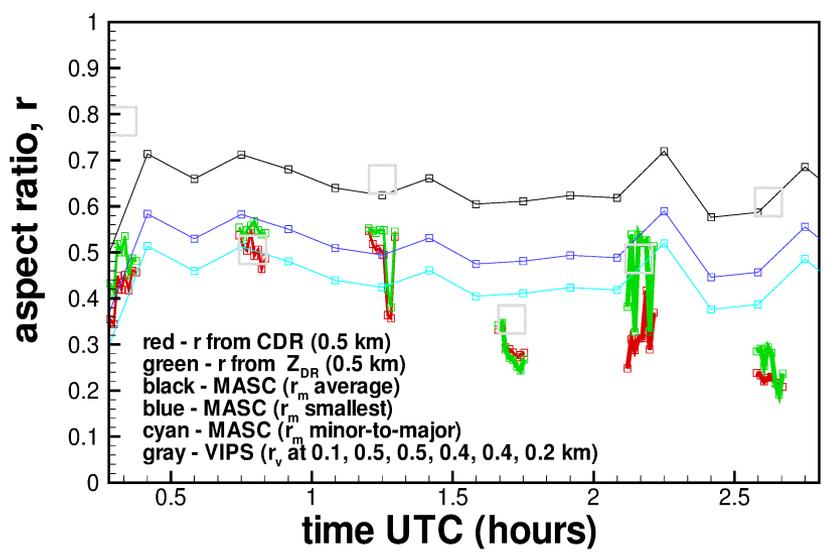
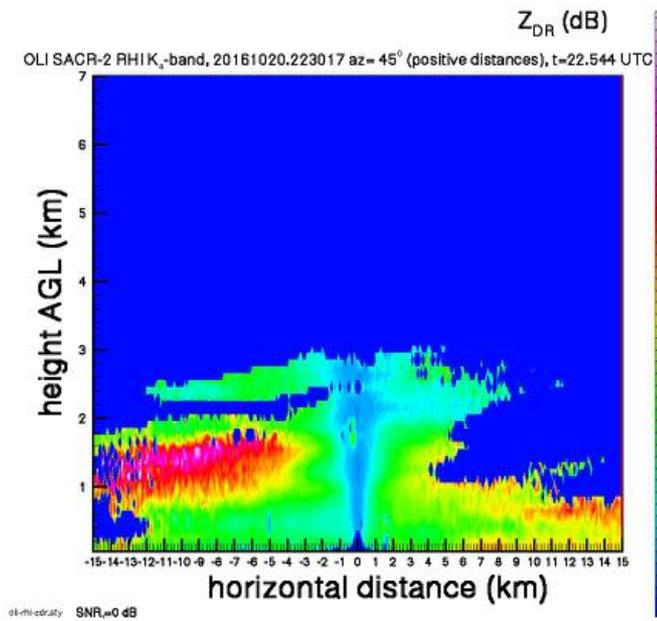
RASM-ESRL Model Evaluation:



AERI-OE temperature retrieval evaluation:



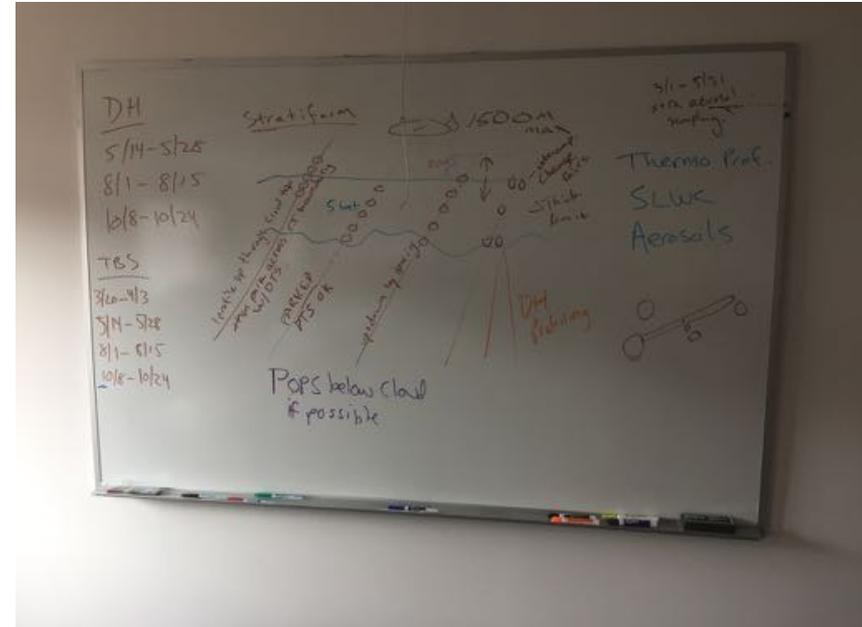
Scientific Areas of Interest: Ice Crystal Habit



Mapping onto 2017 Plans

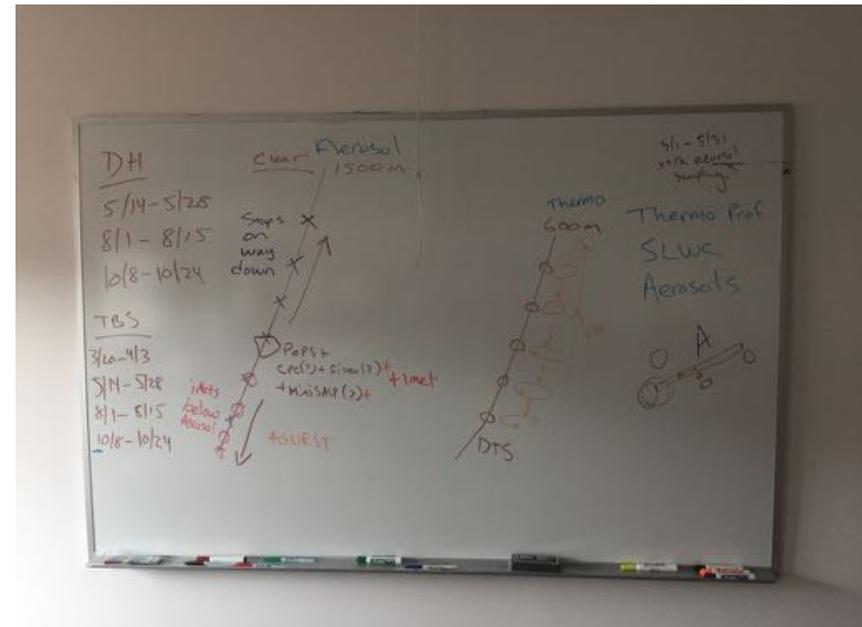
Cloudy Conditions:

- Aerosol profiling from sfc to cloud base for evaluation of cloud microphysical processes
- Profiling through depth of the cloud layer using SLWC sensors for evaluation and cloud microphysical studies
- Thermodynamic profiling with TBS and DH for evaluation models and retrievals and information studies of cloud physics
- Turbulent fluxes as AAF regulations allow



Clear Conditions:

- Profiling of aerosol properties and AOD to as high an altitude as possible for aerosol radiative closure studies
- Thermodynamic profiling for intercomparison of sensors (DH vs. tethersondes vs. DTS vs. radiosonde vs. AERI)
- Profiling of winds and turbulence for evaluation and improvement of measurement strategies



Questions/Discussion



Turbulent Fluxes

